

Data Validation Checklist Inorganic Analyses

Project: 35TH Avenue Superfund Site
 Laboratory: TestAmerica – Savannah, GA
 Method: SW-846 6010C (Aluminum, Arsenic, Iron, and Lead)
 Matrix: Soil
 Reviewer: Karen M Trujillo, URS Group, Inc.
 Concurrence¹: Martha Meyers-Lee, URS Group, Inc.

Project No: 60430028; 1
 Job ID.: 680-106803-2
 Associated Samples: Refer to **Attachment A** (Sample Summary)
 Samples Collected: 10/28/2014 & 10/29/2015
 Date: 08/17/2015
 Date: 08/21/2015

Review Questions	Yes	No	N/A	Samples (Analytes) Affected/Comments	Flag
1. Were sample preservation requirements met? If pH of aqueous sample >2 and was not adjusted by laboratory prior to analysis, J- flag positive results and R- flag non-detect results.			✓		
2. Were all COC records signed and integrity seals intact, indicating that COC was maintained for all samples?	✓				
3. Were there any problems noted in laboratory data package concerning condition of samples upon receipt?		✓			
4. Do any soil/sediment samples contain more than 50% water? If yes, then results are to be reported on a wet-weight basis.		✓			
5. Have any technical holding times, determined from date of collection to date of analysis, been exceeded? (Hg: ≤28 days, other metals: ≤6 months; Cr+6: ≤24 hours from extraction). If not, then J- flag positive results and R- flag non-detect aqueous results.		✓			
6. Were results for all project-specified target analytes reported?	✓				
7. Were project-specified Reporting Limits achieved for undiluted sample analyses?		✓		Resident Soil RSL with THQ = 1.0 (ORNL, June 2015) for target analytes: <ul style="list-style-type: none"> Aluminum: 77,000 mg/Kg Arsenic: 0.68 mg/Kg Iron: 55,000 mg/Kg Lead: 400 mg/Kg The MDL for arsenic is less than the respective above-mentioned RSL in the following undiluted samples: <ul style="list-style-type: none"> 680-106803-25 (CV0971SS-CS18"), [MDL is 0.72 mg/Kg] 680-106803-29 (CV097TT-CS18"), [MDL is 0.69 mg/Kg] 680-106803-37 (CV0971P-CS12"), [MDL is 0.71 mg/Kg] A data gap does not exist as arsenic was detected in the samples.	
8. Were method blank (MB) prepared at the appropriate frequency (one per 20 samples, batch, matrix, and level)?	✓				
9. Was a calibration blank (ICB/CCB) analyzed at the beginning, after every 10 th sample, and at the end of each analytical run?	✓				

¹ Independent technical reviewer

Data Validation Checklist (Continued)

Review Questions	Yes	No	N/A	Samples (Analytes) Affected/Comments	Flag
10. Were target analytes detected in the method and/or calibration blanks?		✓		Target analyte was not detected in the method blank. Calibration blanks were not evaluated.	
11. Were target analytes reported in equipment/rinsate blanks analyses above the DL?			✓	According to the QAPP, a rinsate blank is to be collected after each decontamination event, which occurs once per week per the client. A rinsate blank is not associated with this sampling event. Blank contamination will be evaluated based on method blank results.	
12. Were contaminants detected in samples below the blank contamination action level? <ul style="list-style-type: none"> ○ If blank result > RL, <ul style="list-style-type: none"> • Flag sample results \leq RL with a U • Flag positive sample results > RL and $\leq 10\times$ blank result, as J+ positive results ○ If blank result \leq RL, <ul style="list-style-type: none"> • Flag sample results \leq RL with a U • Flag positive sample results > RL and $\leq 10\times$ blank result, as J+ positive results 			✓	Target analytes were not detected during the analysis of the method blank. An evaluation of the effect of blank contamination on soil sample results was based on method blank results, and not calibration blank results.	
13. Are there negative laboratory blank results with the absolute value \leq RL? If yes, then flag positive and non-detect sample results that are < 10x absolute blank value as J- and UJ, respectively.		✓			
14. Was a field duplicate analyzed?	✓			CV0971O-CSD18" (680-106803-35) is a field duplicate of sample CV0971O-CS18" (680-106803-33).	
15. Was precision deemed acceptable as defined by the project plans?		✓		Refer to Attachment B (Field Duplicate Evaluation)	J
16. Were initial and continuing calibration standards analyzed at the lab/project-specified frequency for each instrument? <ul style="list-style-type: none"> ○ 6010C: <ul style="list-style-type: none"> • ICAL: Blank and one standard • ICV initially, and CCV every 10th sample and at the end of the analytical run • Lower Limit of Quantitation Check Sample (CRI) to be analyzed after establishing lower laboratory reporting limits and as needed ○ 7471A: <ul style="list-style-type: none"> • ICAL: Blank and five standards • ICV initially, and CCV every 10th sample and at the end of the analytical run ○ 7196A: <ul style="list-style-type: none"> • ICAL: Blank and minimum of five standards • ICV initially, and CCV every 10th sample (15th per Method) and at the end of the analytical run 	✓			6010C: 11/04/2014 and 11/05/2014. One blank and one standard initially. ICV initially, and CCV every 10 samples and at end of run. CRI after initial calibration blank analysis.	
17. Were these results within lab/project specifications? <ul style="list-style-type: none"> ○ 6010C <ul style="list-style-type: none"> • ICV/CCV (Criteria: 90-110%R): <ul style="list-style-type: none"> ▪ If %R <75, then J- flag positive results and R-flag non-detects ▪ If 75-89%R, then J- flag positive results and UJ flag non- 	✓				

Data Validation Checklist (Continued)

Review Questions	Yes	No	N/A	Samples (Analytes) Affected/Comments	Flag
<ul style="list-style-type: none"> detects <ul style="list-style-type: none"> ▪ If 111-125%R, then J flag positive results ▪ If >125%R, then J+ flag positive results ▪ If >160%R, then R flag positive results • CRI (Method: 70-130%R, Laboratory: 50-150%R; Project: 50-150%R for Sb, Pb, and Tl, and 70-130%R for all other analytes): <ul style="list-style-type: none"> ▪ If CRI %R <50 (<30% for Sb, Pb, Tl), then R flag results $\leq 2x$ RL and J flag positive results $>2x$ RL ▪ If CRI %R 50-69% (30-49% for Sb, Pb, Tl), then J- and UJ flag positive results $<2x$ RL and ND, respectively ▪ If CRI %R >130% and $\leq 180\%$ (>150%, but $\leq 200\%$ for Sb, Pb, Tl), then J+ flag positive results $<2x$ RL ▪ If CRI %R >180% (>200% for Sb, Pb, Tl), then R flag positive results ○ 7471A <ul style="list-style-type: none"> • ICV/CCV (Criteria: 80-120%R): <ul style="list-style-type: none"> ▪ If correlation coefficients <0.995, then J and UJ flag positive and non-detect results. ▪ If %R <65, then J- flag positive results and R-flag non-detects ▪ If 65-79%R, then J- flag positive results and UJ flag non-detects ▪ If 121-135%R, then J flag positive results ▪ If >135%R, then J+ flag positive results ▪ If >170%R, then R flag positive results • CRI (Method: Not required, Laboratory: 50-150%R, Project: 70-130%R): <ul style="list-style-type: none"> ▪ If CRI %R <50, then R flag results $\leq 2x$ RL and J flag positive results $>2x$ RL ▪ If CRI %R 50-69%, then J- and UJ flag positive results $<2x$ RL and ND, respectively ▪ If CRI %R >130% and $\leq 180\%$, then J+ flag positive results $<2x$ RL ▪ If CRI %R >180%, then R flag positive result ○ 7196A: <ul style="list-style-type: none"> • ICV/CCV (Criteria: 90-110%R): <ul style="list-style-type: none"> ▪ If correlation coefficients <0.995, then J and UJ flag positive and non-detect results. ▪ If %R <65, then J- flag positive results and R-flag non-detects ▪ If 65-90%R, then J- flag positive results and UJ flag non-detects ▪ If 110-135%R, then J flag positive results ▪ If >135%R, then J+ flag positive results ▪ If >170%R, then R flag positive results 					

Data Validation Checklist (Continued)

Review Questions	Yes	No	N/A	Samples (Analytes) Affected/Comments	Flag
18. Was the interference check sample (ICS) analyzed at the beginning of each ICP analytical run?	✓				
19. Are ICS recoveries within 80-120% of the true value? If not, qualify data as follows when native Al, Fe, Ca, and Mg sample concentrations are equal to or greater than the ICS spiking level: <ul style="list-style-type: none"> ○ If >120%R (or >>true value plus 2x CRQL), J+ flag positive results ○ If 50-79%R (or less than true value – 2x the CRQL), J- flag positive results and UJ flag non-detects ○ If <50%R, J- flag positive results and R-flag non-detects 	✓				
20. Was a LCS analyzed for each preparation batch (one per 20 samples per matrix and level)?	✓				
21. Did LCS recoveries meet method/laboratory/project (80-120%R) specifications? <ul style="list-style-type: none"> ○ Soil: <ul style="list-style-type: none"> • LCS result > Upper control limit (UCL): J+ flag positive results • LCS result < Lower control limit (LCL): J- flag positive results and UJ flag non-detects ○ Aqueous: <ul style="list-style-type: none"> • If <50%R, then J- and R flag positive and ND results, respectively • If 50-LCL%R, J- and UJ flag positive and ND results, respectively • >UCL: J+ Flag positive results • >150%R: R Flag results 	✓				
22. Was the RPD between LCS and LCSD results within method/laboratory /project control limits ($\leq 20\%$ RPD)? If not, J and UJ flag positive and non-detect results, respectively			✓	LCS only	
23. Was a Matrix Spike (MS) and Matrix Spike Duplicate (MSD) analyzed once per preparation batch?	✓			<ul style="list-style-type: none"> • Batch 356624: 680-106803-25 (CV0971SS-CS18"), MS/MSD • Batch 356708: 680-106803-30 (CV0971TT-CS24"), MS/MSD 	
24. Is the MS and MSD parent sample a project-specific sample?	✓				
25. Was a post-digestion spike (PDS) analysis conducted when MS and/or MSD results did not meet control limits (Note: PDS is not required for silver, mercury, or hexavalent chromium)?	✓			<ul style="list-style-type: none"> • 680-106803-25 (CV0971SS-CS18") • 680-106803-30 (CV0971TT-CS24") 	
26. For all analytes with sample concentration < 4 x spike concentration, are spike recoveries within method (6010C: 75-125%R MS/MSD and 80-120%R PDS; 7471A: 80-120%R MS/MSD; 7196A: 85-115%R MS), laboratory (MS, MSD, and PDS: 75-125%R for 6010C/7471 (as applicable) and 80-120%R for 7196), and project (as noted below) specifications? <i>Only QC results for project samples are evaluated.</i> If not, <ul style="list-style-type: none"> ○ 6010C: <ul style="list-style-type: none"> • If MS %R <30 and PDS %R <75, then J- and R Flag positive and ND results, respectively 		✓		680-106803-30 (CV0971TT-CS24"): Lead MS and MSD @ 136 and 130%R (Lab/Project: 75-125%R). A PDS analysis was conducted, but the %R was not calculated by the laboratory. The calculated PDS recovery for lead is 97% (Lab/Project: 80-120%R). J Flag sample result.	J

Data Validation Checklist (Continued)

Review Questions	Yes	No	N/A	Samples (Analytes) Affected/Comments	Flag
<ul style="list-style-type: none"> If MS %R <30 and PDS %R >75, then J flag positive and UJ flag non-detect results If MS and MSD %R 30-74 and PDS %R <75, then J- flag positive and UJ flag non-detect results If MS and MSD %R 30-74 and PDS %R ≥75, then J flag positive and UJ flag non-detect results If MS, MSD, and PDS %R >125, J+ flag positive results If MS and MSD %R >125 and PDS %R ≤125, then J flag positive results If MS and MSD %R <30 and no PDS, then J- flag positive and R-flag non-detect results If MS and MSD %R 30-74 and no PDS, then J- and UJ flag positive and non-detect results, respectively If MS and MSD %R >125 and no PDS, then J+ flag positive results <ul style="list-style-type: none"> 7471A/7196: <ul style="list-style-type: none"> If MS %R <30, then J- and R Flag positive and ND results, respectively If MS and MSD %R 30-LCL, then J- flag positive and UJ flag non-detect results If MS and MSD %R >UCL, then J+ flag positive results 					
27. For all analytes with sample concentration < 4 x spike concentration, were laboratory/project (≤20%RPD) criteria met for precision during the MS and MSD analysis? <i>Only QC results for project samples are evaluated.</i> <ul style="list-style-type: none"> If RPD >20%, J and UJ flag positive and non-detect results. 	✓				
28. Was a serial dilution conducted for 6010C/EPA 200.7?	✓				
29. Is the serial dilution parent sample a project-specific sample?	✓			<ul style="list-style-type: none"> 680-106803-25 (CV0971SS-CS18") 680-106803-30 (CV0971TT-CS24") 	
30. Is the percent difference between the serially diluted result and undiluted result less 10% (for those analytes with native concentrations greater than 50x the DL)? <i>Only QC results for project samples are evaluated.</i> <ul style="list-style-type: none"> If %D >10, J and UJ flag positive and non-detect results, respectively. 	✓				
31. Was a laboratory duplicate analyzed?		✓			
32. Was the lab duplicate analysis conducted on a project-specific sample?			✓		
33. Were criteria for laboratory/project precision met? <i>Only QC results for project samples are evaluated.</i> <ul style="list-style-type: none"> If RPD values >20% (35% for soil/sediment) or absolute difference > RL (2x RL for soil/sediment), then J and UJ flag positive and non-detect results, respectively 			✓		

Data Validation Checklist (Continued)

Review Questions	Yes	No	N/A	Samples (Analytes) Affected/Comments	Flag
34. Were lab comments included in report? If yes, summarize contents or attach a copy of the narrative.	✓			Refer to Attachment C (Case Narrative)	
Comments: The data validation was conducted in accordance with the <i>Non-Industrial Use Property Sampling Event QAPP for the 35th Avenue Removal Site, Birmingham, Alabama, Revision 1</i> (OTIE, October 2012). The data review process was modeled after the <i>USEPA Contract Laboratory Program (CLP) National Functional Guidelines (NFG) for Inorganic Data Review</i> (EPA 540-R-04-004, October 2004). Sample results have been qualified based on the results of the data review process (Attachment D). Criteria for acceptability of data were based upon available site information, analytical method requirements, guidance documents, and professional judgment					

DV Flag Definitions:

- J- The result is an estimated quantity, but the result may be biased low.
- J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- J+ The result is an estimated quantity, but the result may be biased high.
- R The data are unusable. The sample results are rejected due to serious deficiencies in meeting Quality Control (QC) criteria. The analyte may or may not be present in the sample.
- U The analyte was analyzed for, but was not detected above the associated level; blank contamination may exist.
- UJ The analyte was analyzed for, but was not detected. The reported limit is approximate and may be inaccurate or imprecise.

ATTACHMENT A
SAMPLE SUMMARY

SAMPLE SUMMARY

Client: Oneida Total Integrated Enterprises LLC

Job Number: 680-106803-2

Sdg Number: 680-106803-02

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
680-106803-21	CV0971AD-GS18"	Solid	10/28/2014 1310	10/31/2014 0934
680-106803-22	CV0971AD-GS24"	Solid	10/28/2014 1320	10/31/2014 0934
680-106803-23	CV0971SS-CS6"	Solid	10/28/2014 1345	10/31/2014 0934
680-106803-24	CV0971SS-CS12"	Solid	10/28/2014 1400	10/31/2014 0934
680-106803-25	CV0971SS-CS18"	Solid	10/28/2014 1415	10/31/2014 0934
680-106803-25MS	CV0971SS-CS18"	Solid	10/28/2014 1415	10/31/2014 0934
680-106803-25MSD	CV0971SS-CS18"	Solid	10/28/2014 1415	10/31/2014 0934
680-106803-26	CV0971SS-CS24"	Solid	10/28/2014 1430	10/31/2014 0934
680-106803-27	CV0971TT-CS6"	Solid	10/28/2014 1440	10/31/2014 0934
680-106803-28	CV0971TT-CS12"	Solid	10/28/2014 1455	10/31/2014 0934
680-106803-29	CV097TT-CS18"	Solid	10/28/2014 1510	10/31/2014 0934
680-106803-30	CV0971TT-CS24"	Solid	10/28/2014 1525	10/31/2014 0934
680-106803-30MS	CV0971TT-CS24"	Solid	10/28/2014 1525	10/31/2014 0934
680-106803-30MSD	CV0971TT-CS24"	Solid	10/28/2014 1525	10/31/2014 0934
680-106803-31	CV0971O-CS6"	Solid	10/29/2014 1115	10/31/2014 0934
680-106803-32	CV0971O-CS12"	Solid	10/29/2014 1130	10/31/2014 0934
680-106803-33	CV0971O-CS18"	Solid	10/29/2014 1145	10/31/2014 0934
680-106803-34	CV0971O-CS24"	Solid	10/29/2014 1200	10/31/2014 0934
680-106803-35	CV0971O-CSD18"	Solid	10/29/2014 1150	10/31/2014 0934
680-106803-36	CV0971P-CS6"	Solid	10/29/2014 1410	10/31/2014 0934
680-106803-37	CV0971P-CS12"	Solid	10/29/2014 1420	10/31/2014 0934
680-106803-38	CV0971P-CS18"	Solid	10/29/2014 1515	10/31/2014 0934
680-106803-39	CV0971P-CS24"	Solid	10/29/2014 1530	10/31/2014 0934
680-106803-40	CV0971AI-GS6"	Solid	10/29/2014 1435	10/31/2014 0934

ATTACHMENT B
FIELD DUPLICATE EVALUATION

Evaluation of Field Duplicate Results

Attachment C

Analyte	CV09710-CS18" 680-106803-33	RL	CV09710-CSD18" 680-106803-35	RL	Unit	Avg. RLx5	RPD	Absolute difference	2x Avg RL	Action
Aluminum	14000	21	14000	21	mg/kg	105	0	NA	NA	None, RPD ≤ 50%
Arsenic	26	2.1	30	2.1	mg/kg	10.5	14	NA	NA	None, RPD ≤ 50%
Iron	42000	21	64000	21	mg/kg	105	42	NA	NA	None, RPD ≤ 50%
Lead	73	1.1	140	1.1	mg/kg	5.5	63	NA	NA	J/UJ-flag, RPD > 50%

Note: If the analyte was not detected, then the cell was left blank.

mg/kg - Milligrams per kilogram

NA - Not applicable

RL - Reporting limit

RPD - Relative percent difference

Precision is based on either the absolute difference between sample results or RPD. If the sample results are less than or equal to 5x's the RL, then precision is based on the absolute difference between duplicate results. If sample results >5x's RL, then precision is evaluated using RPD. J-Flag sample results whenever the absolute difference is greater than the RL (2x for soils) or the RPD >20% (50% for soil). Table above presents the results for detected analytes only.

ATTACHMENT C
CASE NARRATIVE

CASE NARRATIVE
Client: Oneida Total Integrated Enterprises LLC
Project: 35th Avenue Superfund Site
Report Number: 680-106803-2

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In the event of interference or analytes present at high concentrations, samples may be diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

No additional analytical or quality issues were noted, other than those described below or in the Definitions/Glossary page.

RECEIPT

The samples were received on 10/31/2014 9:34 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 3.6° C, 4.2° C and 4.4° C.

SEMIVOLATILE ORGANIC COMPOUNDS (GC/MS) LOW LEVEL PAH

Samples CV0971AD-GS18" (680-106803-21), CV0971AD-GS24" (680-106803-22), CV0971SS-CS6" (680-106803-23), CV0971SS-CS12" (680-106803-24), CV0971SS-CS18" (680-106803-25), CV0971SS-CS24" (680-106803-26), CV0971TT-CS6" (680-106803-27), CV0971TT-CS12" (680-106803-28), CV0971TT-CS18" (680-106803-29), CV0971TT-CS24" (680-106803-30), CV0971O-CS6" (680-106803-31), CV0971O-CS12" (680-106803-32), CV0971O-CS18" (680-106803-33), CV0971O-CS24" (680-106803-34), CV0971O-CSD18" (680-106803-35), CV0971P-CS6" (680-106803-36), CV0971P-CS12" (680-106803-37), CV0971P-CS18" (680-106803-38), CV0971P-CS24" (680-106803-39) and CV0971AI-GS6" (680-106803-40) were analyzed for Semivolatile Organic Compounds (GC/MS) Low level PAH in accordance with EPA SW846 Method 8270D.

Method(s) 8270D_LL_PAH: The following sample(s) was diluted due to the nature of the sample matrix: CV0971SS-CS6" (680-106803-23), CV0971AI-GS6" (680-106803-40), CV0971O-CS12" (680-106803-32), CV0971O-CS18" (680-106803-33), CV0971O-CS24" (680-106803-34), CV0971O-CS6" (680-106803-31), CV0971P-CS12" (680-106803-37), CV0971P-CS18" (680-106803-38), CV0971P-CS24" (680-106803-39), CV0971P-CS6" (680-106803-36), CV0971SS-CS24" (680-106803-26), CV0971TT-CS6" (680-106803-27), CV0971TT-CS18" (680-106803-29), CV0971O-CSD18" (680-106803-35), CV0971TT-CS12" (680-106803-28), CV0971TT-CS24" (680-106803-30). Because of this dilution, the surrogate spikes are not reported.

Method(s) 8270D_LL_PAH: The following sample(s) was diluted due to the nature of the sample matrix: CV0971TT-CS24" (680-106803-30 MS), CV0971TT-CS24" (680-106803-30 MSD). As such, surrogate and MS/MSD spike recoveries were diluted out and are not reported.

Method(s) 8270D_LL_PAH: The continuing calibration verification (CCV) analyzed in batch 356860 was outside the method criteria for the following analyte(s): Benzo[g,h,i]perylene, o-terphenyl, and Pyrene. A CCV standard at or below the reporting limit (RL) was analyzed with the affected samples and found to be acceptable. As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analyte(s) is considered estimated.

Method(s) 8270D_LL_PAH: Manual integration was performed on the following sample(s): CV0971AI-GS6" (680-106803-40), CV0971O-CS12" (680-106803-32), CV0971O-CS18" (680-106803-33), CV0971O-CS24" (680-106803-34), CV0971O-CS6" (680-106803-31), CV0971P-CS18" (680-106803-38), CV0971P-CS24" (680-106803-39), CV0971P-CS6" (680-106803-36), CV0971SS-CS24" (680-106803-26), CV0971TT-CS6" (680-106803-27), CV0971TT-CS18" (680-106803-29).

Indeno[1,2,3-cd]pyrene recovery is outside criteria low for the MS and MSD of sample CV0971SS-CS18" (680-106803-25) in batch 680-356860.

Several analytes have recovery outside criteria for the MS and/or MSD of sample CV0971TT-CS24" (680-106803-30) in batch 680-357632. Several analytes exceeded the RPD limit.

Refer to the QC report for details.

METALS (ICP)

Samples CV0971AD-GS18" (680-106803-21), CV0971AD-GS24" (680-106803-22), CV0971SS-CS6" (680-106803-23), CV0971SS-CS12" (680-106803-24), CV0971SS-CS18" (680-106803-25), CV0971SS-CS24" (680-106803-26), CV0971TT-CS6" (680-106803-27), CV0971TT-CS12" (680-106803-28), CV0971TT-CS18" (680-106803-29), CV0971TT-CS24" (680-106803-30), CV0971O-CS6" (680-106803-31), CV0971O-CS12" (680-106803-32), CV0971O-CS18" (680-106803-33), CV0971O-CS24" (680-106803-34), CV0971O-CSD18" (680-106803-35), CV0971P-CS6" (680-106803-36), CV0971P-CS12" (680-106803-37), CV0971P-CS18" (680-106803-38), CV0971P-CS24" (680-106803-39) and CV0971AI-GS6" (680-106803-40) were analyzed for Metals (ICP) in accordance with EPA SW-846 Method 6010C.

Iron recovery is outside criteria low for the MS and MSD of sample CV0971SS-CS18" (680-106803-25) in batch 680-357015. Aluminum failed the recovery criteria high.

Some metals have recoveries outside criteria for the MS and/or MSD precision and accuracy of sample CV0971TT-CS24" (680-106803-30) in batch 680-357015. Refer to the QC report for details.

PERCENT SOLIDS/MOISTURE

Samples CV0971AD-GS18" (680-106803-21), CV0971AD-GS24" (680-106803-22), CV0971SS-CS6" (680-106803-23), CV0971SS-CS12" (680-106803-24), CV0971SS-CS18" (680-106803-25), CV0971SS-CS24" (680-106803-26), CV0971TT-CS6" (680-106803-27), CV0971TT-CS12" (680-106803-28), CV097TT-CS18" (680-106803-29), CV0971TT-CS24" (680-106803-30), CV0971O-CS6" (680-106803-31), CV0971O-CS12" (680-106803-32), CV0971O-CS18" (680-106803-33), CV0971O-CS24" (680-106803-34), CV0971O-CSD18" (680-106803-35), CV0971P-CS6" (680-106803-36), CV0971P-CS12" (680-106803-37), CV0971P-CS18" (680-106803-38), CV0971P-CS24" (680-106803-39) and CV0971AI-GS6" (680-106803-40) were analyzed for Percent Solids/Moisture in accordance with TestAmerica SOP.

ATTACHMENT D
QUALIFIED SAMPLE RESULTS

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: CV0971AD-GS18" Lab Sample ID: 680-106803-21
Lab Name: TestAmerica Savannah Job No.: 680-106803-2
SDG ID.: 680-106803-02
Matrix: Solid Date Sampled: 10/28/2014 13:10
Reporting Basis: DRY Date Received: 10/31/2014 09:34
% Solids: 81.2

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7429-90-5	Aluminum	15000	22	11	mg/Kg			1	6010C
7440-38-2	Arsenic	44	2.2	0.65	mg/Kg			1	6010C
7439-89-6	Iron	46000	22	7.8	mg/Kg			1	6010C
7439-92-1	Lead	30	1.1	0.59	mg/Kg			1	6010C

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: CV0971AD-GS24"

Lab Sample ID: 680-106803-22

Lab Name: TestAmerica Savannah

Job No.: 680-106803-2

SDG ID.: 680-106803-02

Matrix: Solid

Date Sampled: 10/28/2014 13:20

Reporting Basis: DRY

Date Received: 10/31/2014 09:34

% Solids: 82.1

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7429-90-5	Aluminum	14000	23	11	mg/Kg			1	6010C
7440-38-2	Arsenic	44	2.3	0.68	mg/Kg			1	6010C
7439-89-6	Iron	54000	23	8.0	mg/Kg			1	6010C
7439-92-1	Lead	53	1.1	0.61	mg/Kg			1	6010C

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: CV0971SS-CS6"

Lab Sample ID: 680-106803-23

Lab Name: TestAmerica Savannah

Job No.: 680-106803-2

SDG ID.: 680-106803-02

Matrix: Solid

Date Sampled: 10/28/2014 13:45

Reporting Basis: DRY

Date Received: 10/31/2014 09:34

% Solids: 81.9

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7429-90-5	Aluminum	13000	23	11	mg/Kg			1	6010C
7440-38-2	Arsenic	51	2.3	0.67	mg/Kg			1	6010C
7439-89-6	Iron	39000	23	8.0	mg/Kg			1	6010C
7439-92-1	Lead	66	1.1	0.60	mg/Kg			1	6010C

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: CV0971SS-CS12" Lab Sample ID: 680-106803-24
Lab Name: TestAmerica Savannah Job No.: 680-106803-2
SDG ID.: 680-106803-02
Matrix: Solid Date Sampled: 10/28/2014 14:00
Reporting Basis: DRY Date Received: 10/31/2014 09:34
% Solids: 80.8

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7429-90-5	Aluminum	13000	22	11	mg/Kg			1	6010C
7440-38-2	Arsenic	53	2.2	0.64	mg/Kg			1	6010C
7439-89-6	Iron	42000	22	7.6	mg/Kg			1	6010C
7439-92-1	Lead	62	1.1	0.58	mg/Kg			1	6010C

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: CV0971SS-CS18" Lab Sample ID: 680-106803-25
Lab Name: TestAmerica Savannah Job No.: 680-106803-2
SDG ID.: 680-106803-02
Matrix: Solid Date Sampled: 10/28/2014 14:15
Reporting Basis: DRY Date Received: 10/31/2014 09:34
% Solids: 80.2

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7429-90-5	Aluminum	13000	24	12	mg/Kg			1	6010C
7440-38-2	Arsenic	50	2.4	0.72	mg/Kg			1	6010C
7439-89-6	Iron	43000	24	8.6	mg/Kg			1	6010C
7439-92-1	Lead	30	1.2	0.65	mg/Kg			1	6010C

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: CV0971SS-CS24" Lab Sample ID: 680-106803-26
Lab Name: TestAmerica Savannah Job No.: 680-106803-2
SDG ID.: 680-106803-02
Matrix: Solid Date Sampled: 10/28/2014 14:30
Reporting Basis: DRY Date Received: 10/31/2014 09:34
% Solids: 83.5

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7429-90-5	Aluminum	13000	22	11	mg/Kg			1	6010C
7440-38-2	Arsenic	54	2.2	0.65	mg/Kg			1	6010C
7439-89-6	Iron	39000	22	7.7	mg/Kg			1	6010C
7439-92-1	Lead	180	1.1	0.58	mg/Kg			1	6010C

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: CV0971TT-CS6" Lab Sample ID: 680-106803-27
Lab Name: TestAmerica Savannah Job No.: 680-106803-2
SDG ID.: 680-106803-02
Matrix: Solid Date Sampled: 10/28/2014 14:40
Reporting Basis: DRY Date Received: 10/31/2014 09:34
% Solids: 87.7

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7429-90-5	Aluminum	13000	21	11	mg/Kg			1	6010C
7440-38-2	Arsenic	26	2.1	0.63	mg/Kg			1	6010C
7439-89-6	Iron	55000	21	7.5	mg/Kg			1	6010C
7439-92-1	Lead	120	1.1	0.56	mg/Kg			1	6010C

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: CV0971TT-CS12" Lab Sample ID: 680-106803-28
Lab Name: TestAmerica Savannah Job No.: 680-106803-2
SDG ID.: 680-106803-02
Matrix: Solid Date Sampled: 10/28/2014 14:55
Reporting Basis: DRY Date Received: 10/31/2014 09:34
% Solids: 87.2

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7429-90-5	Aluminum	12000	22	11	mg/Kg			1	6010C
7440-38-2	Arsenic	95	2.2	0.66	mg/Kg			1	6010C
7439-89-6	Iron	46000	22	7.9	mg/Kg			1	6010C
7439-92-1	Lead	210	1.1	0.60	mg/Kg			1	6010C

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: CV097TT-CS18"

Lab Sample ID: 680-106803-29

Lab Name: TestAmerica Savannah

Job No.: 680-106803-2

SDG ID.: 680-106803-02

Matrix: Solid

Date Sampled: 10/28/2014 15:10

Reporting Basis: DRY

Date Received: 10/31/2014 09:34

% Solids: 85.7

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7429-90-5	Aluminum	13000	23	12	mg/Kg			1	6010C
7440-38-2	Arsenic	40	2.3	0.69	mg/Kg			1	6010C
7439-89-6	Iron	60000	23	8.2	mg/Kg			1	6010C
7439-92-1	Lead	180	1.2	0.62	mg/Kg			1	6010C

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: CV0971TT-CS24"

Lab Sample ID: 680-106803-30

Lab Name: TestAmerica Savannah

Job No.: 680-106803-2

SDG ID.: 680-106803-02

Matrix: Solid

Date Sampled: 10/28/2014 15:25

Reporting Basis: DRY

Date Received: 10/31/2014 09:34

% Solids: 86.3

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7429-90-5	Aluminum	16000	23	11	mg/Kg			1	6010C
7440-38-2	Arsenic	72	2.3	0.68	mg/Kg			1	6010C
7439-89-6	Iron	41000	23	8.0	mg/Kg			1	6010C
7439-92-1	Lead	170	1.1	0.61	mg/Kg		J	1	6010C

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: CV09710-CS6"

Lab Sample ID: 680-106803-31

Lab Name: TestAmerica Savannah

Job No.: 680-106803-2

SDG ID.: 680-106803-02

Matrix: Solid

Date Sampled: 10/29/2014 11:15

Reporting Basis: DRY

Date Received: 10/31/2014 09:34

% Solids: 86.8

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7429-90-5	Aluminum	14000	21	10	mg/Kg			1	6010C
7440-38-2	Arsenic	27	2.1	0.62	mg/Kg			1	6010C
7439-89-6	Iron	47000	21	7.3	mg/Kg			1	6010C
7439-92-1	Lead	96	1.0	0.55	mg/Kg			1	6010C

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: CV09710-CS12"

Lab Sample ID: 680-106803-32

Lab Name: TestAmerica Savannah

Job No.: 680-106803-2

SDG ID.: 680-106803-02

Matrix: Solid

Date Sampled: 10/29/2014 11:30

Reporting Basis: DRY

Date Received: 10/31/2014 09:34

% Solids: 87.0

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7429-90-5	Aluminum	11000	20	10	mg/Kg			1	6010C
7440-38-2	Arsenic	15	2.0	0.60	mg/Kg			1	6010C
7439-89-6	Iron	37000	20	7.1	mg/Kg			1	6010C
7439-92-1	Lead	39	1.0	0.54	mg/Kg			1	6010C

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: CV09710-CS18"

Lab Sample ID: 680-106803-33

Lab Name: TestAmerica Savannah

Job No.: 680-106803-2

SDG ID.: 680-106803-02

Matrix: Solid

Date Sampled: 10/29/2014 11:45

Reporting Basis: DRY

Date Received: 10/31/2014 09:34

% Solids: 85.7

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7429-90-5	Aluminum	14000	21	11	mg/Kg			1	6010C
7440-38-2	Arsenic	26	2.1	0.62	mg/Kg			1	6010C
7439-89-6	Iron	42000	21	7.4	mg/Kg			1	6010C
7439-92-1	Lead	73	1.1	0.56	mg/Kg		J	1	6010C

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: CV09710-CS24"

Lab Sample ID: 680-106803-34

Lab Name: TestAmerica Savannah

Job No.: 680-106803-2

SDG ID.: 680-106803-02

Matrix: Solid

Date Sampled: 10/29/2014 12:00

Reporting Basis: DRY

Date Received: 10/31/2014 09:34

% Solids: 85.0

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7429-90-5	Aluminum	13000	20	9.9	mg/Kg			1	6010C
7440-38-2	Arsenic	18	2.0	0.58	mg/Kg			1	6010C
7439-89-6	Iron	30000	20	6.9	mg/Kg			1	6010C
7439-92-1	Lead	21	0.99	0.52	mg/Kg			1	6010C

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: CV09710-CSD18"

Lab Sample ID: 680-106803-35

Lab Name: TestAmerica Savannah

Job No.: 680-106803-2

SDG ID.: 680-106803-02

Matrix: Solid

Date Sampled: 10/29/2014 11:50

Reporting Basis: DRY

Date Received: 10/31/2014 09:34

% Solids: 86.5

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7429-90-5	Aluminum	14000	21	11	mg/Kg			1	6010C
7440-38-2	Arsenic	30	2.1	0.63	mg/Kg			1	6010C
7439-89-6	Iron	64000	21	7.4	mg/Kg			1	6010C
7439-92-1	Lead	140	1.1	0.56	mg/Kg		J	1	6010C

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: CV0971P-CS6"

Lab Sample ID: 680-106803-36

Lab Name: TestAmerica Savannah

Job No.: 680-106803-2

SDG ID.: 680-106803-02

Matrix: Solid

Date Sampled: 10/29/2014 14:10

Reporting Basis: DRY

Date Received: 10/31/2014 09:34

% Solids: 82.8

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7429-90-5	Aluminum	9700	20	10	mg/Kg			1	6010C
7440-38-2	Arsenic	19	2.0	0.60	mg/Kg			1	6010C
7439-89-6	Iron	40000	20	7.2	mg/Kg			1	6010C
7439-92-1	Lead	140	1.0	0.54	mg/Kg			1	6010C

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: CV0971P-CS12"

Lab Sample ID: 680-106803-37

Lab Name: TestAmerica Savannah

Job No.: 680-106803-2

SDG ID.: 680-106803-02

Matrix: Solid

Date Sampled: 10/29/2014 14:20

Reporting Basis: DRY

Date Received: 10/31/2014 09:34

% Solids: 82.1

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7429-90-5	Aluminum	13000	24	12	mg/Kg			1	6010C
7440-38-2	Arsenic	29	2.4	0.71	mg/Kg			1	6010C
7439-89-6	Iron	40000	24	8.4	mg/Kg			1	6010C
7439-92-1	Lead	66	1.2	0.64	mg/Kg			1	6010C

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: CV0971P-CS18" Lab Sample ID: 680-106803-38
Lab Name: TestAmerica Savannah Job No.: 680-106803-2
SDG ID.: 680-106803-02
Matrix: Solid Date Sampled: 10/29/2014 15:15
Reporting Basis: DRY Date Received: 10/31/2014 09:34
% Solids: 87.0

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7429-90-5	Aluminum	11000	20	10	mg/Kg			1	6010C
7440-38-2	Arsenic	20	2.0	0.59	mg/Kg			1	6010C
7439-89-6	Iron	32000	20	7.0	mg/Kg			1	6010C
7439-92-1	Lead	100	1.0	0.53	mg/Kg			1	6010C

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: CV0971P-CS24"

Lab Sample ID: 680-106803-39

Lab Name: TestAmerica Savannah

Job No.: 680-106803-2

SDG ID.: 680-106803-02

Matrix: Solid

Date Sampled: 10/29/2014 15:30

Reporting Basis: DRY

Date Received: 10/31/2014 09:34

% Solids: 85.9

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7429-90-5	Aluminum	14000	23	12	mg/Kg			1	6010C
7440-38-2	Arsenic	29	2.3	0.68	mg/Kg			1	6010C
7439-89-6	Iron	40000	23	8.1	mg/Kg			1	6010C
7439-92-1	Lead	120	1.2	0.61	mg/Kg			1	6010C

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: CV0971AI-GS6"

Lab Sample ID: 680-106803-40

Lab Name: TestAmerica Savannah

Job No.: 680-106803-2

SDG ID.: 680-106803-02

Matrix: Solid

Date Sampled: 10/29/2014 14:35

Reporting Basis: DRY

Date Received: 10/31/2014 09:34

% Solids: 83.1

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7429-90-5	Aluminum	8600	21	11	mg/Kg			1	6010C
7440-38-2	Arsenic	18	2.1	0.63	mg/Kg			1	6010C
7439-89-6	Iron	27000	21	7.5	mg/Kg			1	6010C
7439-92-1	Lead	99	1.1	0.56	mg/Kg			1	6010C